

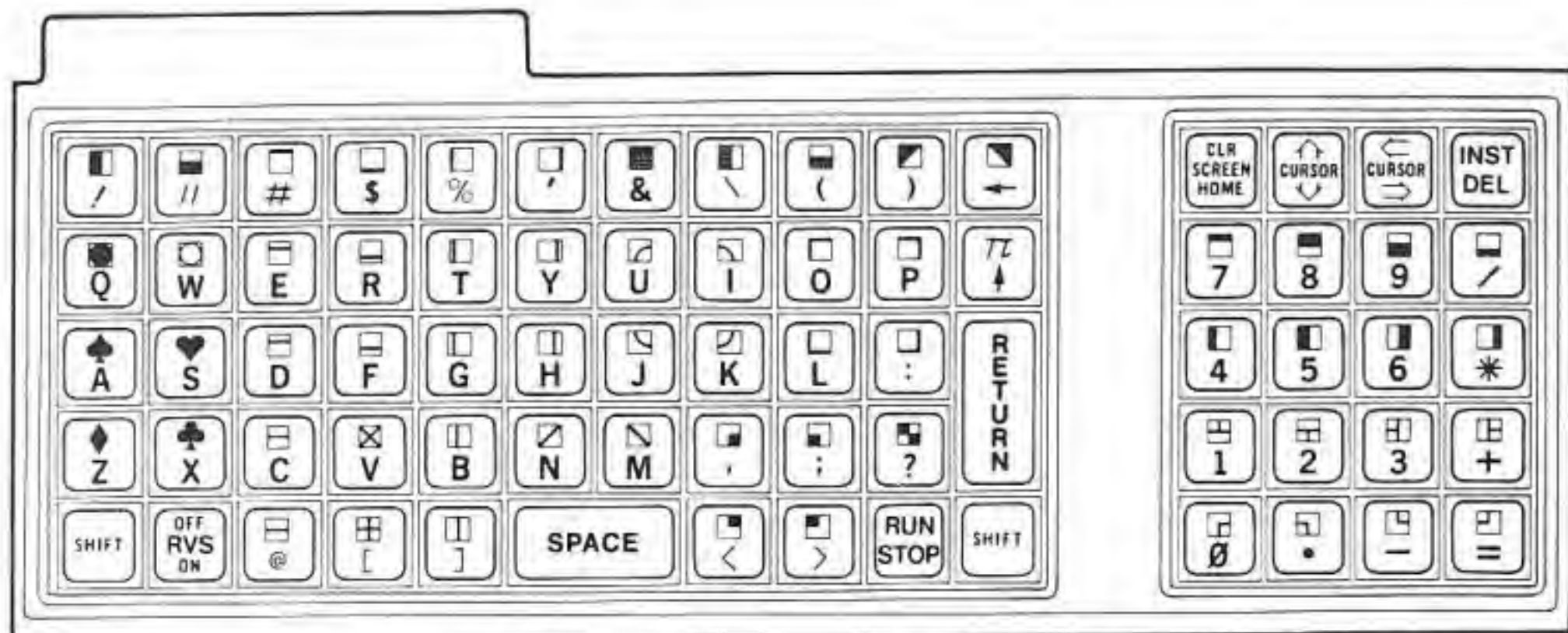
# Computer PET 2001



**commodore**







## the PET keyboard

The PET keyboard consists of 73 keys. There are the usual alphanumerics (A-Z and 0-9) found on typewriters and calculators and many computers.

But the PET has something more: 64 graphic characters. The graphics can be used for plots, for fun and games, or for artwork.

There are also special screen and keyboard control keys which allow the moving of the cursor in four directions, the reversing of characters and background, the inserting and deleting of characters. Shift keys and a run/stop key are also provided to facilitate keyboard operations.

By the use of a POKE command lower case letters are obtained instead of the graphic symbols above the capital letter keys.

## specifications

**Dimensions:** 16 1/2" wide by 18 1/2" deep, 14" overall height.

**Weight:** 44lbs

### MEMORY

**Random Access Memory** (user memory): 8K included. Expandable to 32K bytes externally.

**Read Only Memory** (operating system resident in the computer): 13K bytes  
8K BASIC interpreter  
4K—Operating system  
1K—Diagnostic routine

### VIDEO DISPLAY UNIT

9" enclosed, black and white, high-resolution CRT  
1000 character display, arranged 40 columns by 25 lines  
8 x 8 dot matrix for characters and continuous graphics  
Automatic scrolling from bottom of screen  
Winking cursor with full motion control  
Reverse field on all characters (white on black or black on white)

64 standard ASCII characters; 64 graphic characters

### KEYBOARD

9 1/2" wide x 3" deep; 73 keys  
All 64 ASCII characters available without shift. Calculator style numeric key pad  
All 64 graphic and reverse field characters accessible from keyboard (with shift)

**Screen Control:** Clear and erase  
**Editing:** Character insertion and deletion

### CASSETTE STORAGE

Fast Commodore designed redundant-recording scheme, assuring reliable data recovery  
Cassette drive modified by Commodore for much higher reliability of recording and record retention  
High noise immunity, error detection, and correction  
Uses standard audio cassette tapes  
Tape files, named

### OPERATING SYSTEM

Machine language accessibility  
File management in operating system

Cursor control, reverse field, and graphics under simple BASIC control

Cassette file management from BASIC

Pseudo random number Generator

### INPUT/OUTPUT

All other I/O supported through IEEE-488 instrument interface which allows for multiple intelligent peripherals  
All I/O automatically managed by operating system software  
Single character I/O with GET command  
Easy screen line-edit capability  
Flexible I/O structure allows for BASIC expansion with intelligent peripherals

### BASIC INTERPRETER

Expanded 8K BASIC; 20% faster than most other 8K BASICS  
Upward expansion from current popular BASIC language  
Strings, integers and multiple dimension arrays  
10 significant digits; floating point numbers  
Direct memory access through PEEK and POKE commands

# commodore basic

The fastest full floating-point BASIC implemented on a micro-computer. Allows communication directly from BASIC to IEEE-488 standard devices, cassettes, display, and keyboard built into PET. Accurately built-in clock is settable and readable from BASIC in decimal or string value. Full command set, including:

## Basic Arithmetic Statements

+ - \* / ↑ < > =

## Standard Dartmouth BASIC Statements

LET READ PRINT DATA IF  
THEN FOR NEXT DIM END  
GOTO

## Extended BASIC Statements

RESTORE REM GET GOSUB DEF  
RETURN STOP STEP INPUT FN  
ON . . . GOTO ON . . . GOSUB

## Scientific Functions

SGN INT ABS SQR RND SIN  
COS TAN ATN LOG EXP  $\pi$

## Logical Operators

AND OR NOT

## Operation Commands

RUN NEW CLR LIST CONT FRE

## Formating Functions

TAB POS SPC

## Machine Level Statements

PEEK POKE

Allow the user to examine and store at specific memory locations.

USR SYS

Link BASIC to machine language subroutines with parameter passing or developemental subsystems.

WAIT

Monitors status of a memory location such as an I/O port until specified bits are set.

The screen writing rate is 1000 characters per second.

## String Functions

LEFT\$ RIGHT\$ MID\$

Returns substrings (of specified length and

position) of string acted upon.

CHR\$ ASC

CHR\$ returns a character, given a numeric code. ASC returns a numeric code corresponding to a character.

LEN

Returns the length of a string.

VAL STR\$

Convert decimal values to numeric strings and vice-versa.

## Extended I/O Statements

OPEN CLOSE

Control association of a logical file number to physical device, and optionally, a file on the device.

SAVE LOAD VERIFY

Store and retrieve a program, with optional file name, on a physical device. Load allows for program overlay, VERIFY compares contents of memory to stored program.

PRINT# INPUT# GET#

Allow communication with logical device numbers other than keyboard or screen. GET# inputs one character.

CMD

Permits communication with multiple devices simultaneously.

## Example of I/O Operations

### Tape-to-tape file copy

```
10 OPEN 5,1,0, "OLD FILE"  
15 POKE 243, 58: POKE 244, 3  
20 OPEN 6,2,1, "NEW FILE"  
30 INPUT #5, A$  
40 IF (ST) AND 64 GO TO 70  
50 PRINT #6, A$  
60 GO TO 30  
70 CLOSE 5  
80 CLOSE 6
```

Program locates "OLD FILE" on tape #1, writes file header for "NEW FILE" on tape #2, then copies tape #1 to #2 until it encounters an EOF on #1, and then writes an EOF on #2.

## Variables

TYPES: Real Integer (%) String (\$)  
NAMES: Variable names are uniquely given as a letter or a letter followed by a letter or a digit.

## Special variables

TI TIS Time of day  
ST Status word for I/O operations.



# software and documentation

The inclusion of 8K of extended BASIC in ROM means there are a large number of existing programs that can readily be adapted for use with the PET. In addition Commodore has established its own Program Library which is being added to on a monthly basis. These are being issued on cassettes and include Scientific, Financial, Business, Educational and Game

packages. Personalised programming is not undertaken by Commodore but is available from many Authorised Dealers, software houses and freelance programmers. Commodore's BASIC is comprehensive and easily learnt for writing one's own programs.

An introductory and a Main Users

Handbook are included as standard documentation. Also available are the highly praised hardware and Programming manuals on our own MOS Technology 6500 microprocessor — used at the heart of both the pet computer and our KIM microprocessor system. These will aid the more sophisticated users.

The U.K. PET Users Club also produces regular newsletters covering such topics as applications, software hints and program information. The rapid acceptance and acclaim of PET by industry professionals means it is becoming an industry standard ensuring further software availability from many external sources.



## further expansion

### The IEEE-488 Interface

Expansion is one of the prime design concepts of the PET. The IEEE-488 (HP-IB) interface built into the PET allows for multiple intelligent peripherals (up to 15 devices). A list of many compatible devices is included in the User's Handbook.

### A Floppy Disc and Modem

Commodore has both of these under development for inclusion in its own PET range of products. Also planned are memory expansion units. It should be noted that PET's design does not preclude the use of other company's peripherals.

### An RS 232 Interface

This is not supplied by Commodore as PET peripherals are planned as plug compatible with the PET itself. IEEE-488 to RS 232 interfaces may be obtained from other suppliers. This means further add-ons can be used in conjunction with PET — in particular many common printers and modems.

### Expanding to a Much Larger System

The PET computer is an extremely versatile and expandable base for much larger systems than the self-contained PET itself. It can, in fact, be used as a front end processor, in several languages, for linking to a mainframe computer.

# connections to the outside world

Available at the back and sides of the PET 2001 computer are four edge card connectors. These are to the built-in IEEE-488 interface (HP-IB), the 8 bit user port with two extra handshake lines, the second cassette interface and the memory expansion connection.

# some application areas for PET

## For the Commercial User

The Commodore PET offers the commercial user for the first time a really cost effective business

computer. The speed of the PET plus its well-known BASIC language enable it to be used efficiently for:

- Trend Analysis
- Stock Control
- Payroll
- Invoicing
- Inventory Control
- Amortization Calculations, etc.

Commodore will be introducing a floppy disc data and program storage system and a printer, allowing the user to store and retrieve thousands of pieces of information in seconds, and produce printed results. Lower case letters are available, making PET ideal for producing form letters.

## For the Scientist and the Laboratory

The PET has a comprehensive set of scientific functions useful to scientists, engineers and industry. The IEEE-488 Interface (HP-IB) is

directly compatible with hundreds of laboratory instruments such as DVM's, synthesizers, auto analysers, data-loggers, etc. The PET also has a general purpose 8 bit plus 2 control bit I/O port for general interfacing. This last feature makes the PET an ideal industrial and commercial controller. Direct access to machine code allows special I/O routines to be easily written.

## For the Educational World

The PET's applications in the educational field are numerous. The extensive BASIC language and the file by name cassette program storage facilities make the PET an ideal tool for teaching computer programming. Programs can be written to "tutor" the user (pupil) in almost any discipline, including BASIC itself. And, of course, the PET can be used to take care of school records, exam results, attendance figures, etc.

# the PET 2nd cassette deck

The PET second cassette deck plugs directly into the PET 2001 computer adding further capability to the basic PET system. Stopping and starting of the motor can again be done under program control. All the features of the built-in cassette deck are in this unit including the specially designed electronics.





# the PET 2020 printer

Designed specifically to go with the Pet 2001 computer and make full use of its extensive capability is the PET 2020 printer. The PET 2020 is an 80 column, 7 x 8 needle matrix impact printer which again demonstrates Commodore's continued outstanding value for money policy and technical expertise.

The printer works on plain paper and is capable of producing carbon copies. In addition such items as individual sheets (e.g. headed notepaper) and address labels can be used as alternatives to plain paper rolls when desired.

The PET 2020 printer is IEEE-488 compatible and plugs directly into the PET 2001 computer. As well as the ability to print the full PET computer graphics, including reverse and lower case, the PET printer will also print double width capital letters for such uses as document headings. The

average speed of the printer is 50 characters per second. The paper is pinch roller fed and is 8½" wide.

The PET 2020 printer contains its own microprocessor and is capable of accepting format statements under program control — having memorised these

statements the printer will automatically format incoming information on the printed page, e.g. it can automatically insert leading zeros and round to fixed decimal places for stock numbering and financial statements.

*(Planned availability: First quarter 1979)*



## this is an example

### THIS IS THE NEW PET PRINTER

It Can Print Both Upper And Lower Case Characters As Well As ~~ABC~~X/\`|,

IT IS A 80 COLUMN DOT MATRIX PRINTER WITH 96 DIFFERENT CHARACTERS

@ABCDEFGHIJKLMN O PQRSTU VWXYZ \ ] ^ \_ ` ! " # \$ % & ' ( ) \* + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

- a b c d e f g h i j k l m n o p q r s t u v w x y z - + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

- a b c d e f g h i j k l m n o p q r s t u v w x y z - + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

# Commodore's philosophy

Commodore (CBM) has been in business for over 21 years during which time it has established an enviable reputation for outstanding value and innovation — none better illustrated than by the PET 2001 computer. Already recognised as a leader in advanced consumer electronics Commodore has further increased its worldwide technical resources. These now include in house microprocessor technology and production through its own Mos Technology subsidiary.

These special strengths have been combined to produce a truly outstanding product — the PET 2001 computer. A personal computer that operates anywhere by simply plugging into the mains. An extremely powerful self contained tool at the command of its owner yet capable of even further expansion.

Quite portable, very affordable and unbelievably versatile, the PET 2001 computer may well be a lifetime investment.



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